The American Midland Naturalist

Founded by J. A. Nieuwland, C.S.C.

Editor Robert P. McIntosh

E. F. Benfield, Blacksburg, Virginia Limnology and Hydrobiology
May Berenbaum, Urbana, IllinoisEntomology
Albert O. Bush, Brandon, Man., CanadaParasitology
Norman L. Christensen, Durham, North CarolinaPlant Ecology
Gary L. Cunningham, Las Cruces, New MexicoPlant Physiology
Arthur W. Ghent, Urbana, IllinoisBiological Statistics
J. Whitfield Gibbons, Aiken, South CarolinaHerpetology
James F. Lynch, Edgewater, MarylandAnimal Ecology
R. L. Pardy, Lincoln, NebraskaInvertebrate Zoology
Robert K. Rose, Norfolk, Virginia
William M. Shields, Syracuse, New YorkOrnithology
Franklin Snelson, Jr., Orlando, FloridaIchthyology
Dieter H. Wilken, Ft. Collins, ColoradoSystematic Botany

Vol. 113, 1985 (January, April)

Dates of Publication No. 1 February 27, 1985 No. 2 May 29, 1985

PUBLISHED BY THE UNIVERSITY OF NOTRE DAME
NOTRE DAME, INDIANA

CONTENTS

No. 1, January, 1985

, ,	
Consumption of Leaf Litter by Lumbricus terrestris (Oligochaeta) on a Michigan Woodland Floodplain	
Michigan Woodland Floodplain. Wesley G. Knollenberg, Richard W. Merritt and Daniel L. Lawson Cave Colonization by Fish: Role of Bat PredationAldemaro Romero	7
An Evaluation of Host Fish Suitability for Glochidia of Villosa vanuxemi and V. nebulosa (Pelecypoda: Unionidae).	13
Resource Partitioning by Stream-dwelling Crayfish: The Influence of Body Size	20
Growth and Survivorship in a California Population of Gerrhonotus coeruleus, with Comments on Intraspecific Variation in Adult Fe-	20
male Size	30
Invertebrate Colonization of Submerged Wood in a Cypress-Tupelo	45
Swamp and Blackwater StreamJames H. Thorp, Eileen M. McEwan, Michael F. Flynn and F. Richard Hauer Hilltopping in the Nymphalid Butterfly Chlosyne californica	56
(Lepidoptera)John Alcock	69
Life History of Helicopsyche borealis (Hagen) (Trichoptera: Helicopsychidae) in Oklahoma	76
in Impatiens capensisMichael Zimmerman and Susan Cook	84
Migration of Species During Early Colonization	92
Selection and Burrowing by the Pine Vole Microtus pinetorum Donald H. Rhodes and Milo E. Richmond Seasonal Forage Availability and Potential Vegetation Limitations to a	102
Mountain Goat Population, Olympic National Park	109
Holocene Vegetational Changes in the Tombigbee River Valley, Eastern Mississippi Donald R. Whitehead and Mark C. Sheehan	122
The Effect of Sampling Scale on the Detection of Interspecific Patterns in a Hemlock-hardwood Forest Herb Stratum. Douglas A. Maguire	138
Four Decades of Secondary Succession in Two Lowland Permanent Plots in Northern Lower Michigan	
Aboveground Litter Production of Three Temperate Semidesert Shrubs	146
Neil E. West Nutrient and Biomass Allocation in Five Grass Species in an Okla-	158
homa Tallgrass Prairie Dwight E. Adams and Linda L. Wallace Response of Sitanion hystrix (Nutt.) J. G. to Prescribed Burning	170
	182
Notes and Discussion	
Mortality Associated with Severe Weather in a Northern Population of Cotton Rats	188
of Cotton Rats	190
Grasshopper Attack and Water Balance of the Shrub Gutierrezia	102

Defensive Stinging and Müllerian Mimicry among Eumenid Wasps (Hymenoptera: Vespoidea: Eumenidae)	
The Red Cedar (Juniperus virginiana L.) Seed Shadow along a	198
Fenceline Anthonie M. A. Holthuijzen and Terry L. Sharik Winter Foraging Patterns and Consumption Rates of Northern	200
Wisconsin Coyotes Craig N. Huegel and Orrin J. Rongstad	203
ERRATA	208
CONTENTS	
No. 2, April, 1985	
Life History Traits of the Florida Sand Darter Ammocrypta bifascia, and Comparisons with the Naked Sand Darter Ammocrypta beani	
Food Habits and Feeding Periodicity in Two Sympatric Stonerollers	209
(Cyprinidae)James F. Fowler and Charles A. Taber Distribution of Midwestern Fishes and Multivariate Environmental Gradients, with Emphasis on Notropis lutrensis	217
Homing in and Ecology of the Southern Flying Squirrel Glaucomys volans in Southeastern Virginia	225
Selection of Sites for Winter Night Beds by White-tailed Deer in a Hemlock-Northern Hardwood Forest	238
Evidence for Noncycling Populations and the Importance of Immigration	245
in Voles Inhabiting an Illinois Tallgrass Prairie	255
Michigan: 1974-1981	271
Paradioecy and Gender Ratios in Carex macrocephala (Cyperaceae) Lisa A. Standley Successional Trends on Tree Islands in the Okefenokee Swamp as	283
Determined by Interspecific Association AnalysisJane E. Glasser	287
Composition, Classification and Species Response Patterns of Remnant Tallgrass Prairies in Texas David D. Diamond and Fred E. Smeins Postfire Succession in Californian Coastal Sage Scrub: The Role of	294
Continual Basal Sprouting	309
Dispersal of Beech Nuts by Blue Jays in Fragmented Landscapes	319
Photoperiodic and Temperature Influence on Metabolism and Water Intake in Two Populations of the Red-winged Blackbird	
Perlid Stoneflies (Plecoptera) in an Appalachian Drainage: A Multivariate	325
Approach to Mapping Stream CommunitiesAndrew L. Sheldon	334
Food Habits of Species of Ephemerellid Mayflies (Ephemeroptera: Insecta) in Streams of Oregon	343
(Hymenoptera: Vespidae)Wayne D. Lord and Roland R. Roth Life History Characteristics of Populations of the Long-toed Salamander	353
(Ambystoma macrodactylum) from Different Altitudes	361

The Trematode Fauna of Two Inter solitaria and Calidris melanotos (Ave Erika J. Tallman, Kenneth C		374		
Notes and Discussion				
Regressions of Skull and Molar Mea Size of Microtus breweri and	Richard A. Kiltie asurements for Estimating Body Microtus pennsylvanicus from	384		
	. Adler and Robert H. Tamarin	388		
	Premysl Hamr and Lee Sinclair	390		
Differences in Vegetative and Repro	C. Kangas and Gary L. Hannan	392		
	Introduced Species (Cinnabar	397		
Daniel R. Formanowicz, Relationship between Road Densitie	Jr. and Edmund D. Brodie, Jr.	401		
in Wisconsin				
PiedmontCarroll H. Allen, R. Larry Marchinton and W. Mac Lentz				
Typhlichthys subterraneus (Am		413		
Author Index				
Adams, Dwight E 170	Gates, J. Edward	245		
Adkisson, Curtis S	Glasser, Jane E.	287		
Alcock, John 69	Hamr, Premysl	390		
Allen, Carroll H 408	Hannan, Gary L	392		
Partels Paul Ion 100	Hauer, Richard	56		
Bartels, Paul Jon	Hawkins, Charles P	343		
Bliss, L. C	Hayes, Timothy M	325		
Brenner, Fred J 325	Heins, David C	209 200		
Brodie, Edmund D., Jr 401	Holthuijzen, Anthonie M. A Howard, James H	361		
Cairns, J., Jr 92	Huegel, Craig N	203		
Cook, Susan 84	I-b W G	210		
Consum, reciment C	Johnson, W. Carter Jolls, Claudia L	319 271		
	Jones, Stephen R	413		
Diamond, David D 294	V	200		
Flynn, Michael F	Kangas, Patrick C	392 384 255 1		

Lang, Brian K	245	Sawyer, Sherrie L	238
Lawson, Daniel L	1		200
Lord, Wayne D	353		122
		Sheldon, Andrew L	334
Mac Lentz, W	408		390
Maguire, Douglas A	138		294
Malanson, George P	309	Standley, Lisa A	283
Marchinton, R. Larry	408	Stewart, James R	30
Matthews, William J	225	Sulak, JoAnne H	146
McEwan, Eileen M	56		
Meier, K.	92	Taber, Charles A 217,	
Merritt, Richard W	1		374
Meserve, Peter L	255		374
Miller, Richard F	182		388
Moyer, Carol A	388	a second a second secon	404
		Thorp, James H	56
Neves, Richard J	13	V	397
B 1 1 1 1	100		
Parker, watthew A	193	Vaughn, Caryn C	76
Pfitsch, W. A	109	Wages Ionathan K	45
Pratt, J. R.	92	Waldbauer C. P.	198
D 1 -: CL 1 - E	00		170
Rabeni, Charles F	20		361
Rhodes, Donald H	102	Weaver, Lynn R	13
Richmond, Milo E	102		158
Roberts, Mark R	271		309
Romero, Aldemaro,	203		122
Rongstad, Orrin J	238	Trinteneut, Donaid IC.	
Rose, Robert K	353	Young, Richard P	182
Roui, Roiana R	333		
Sakai, Ann K 146,	271	Zale, Alexander V	13
Sauer, John R		Zimmerman, Michael	84
, 3			
Sul	bject	Index	
Agelaius phoeniceus, metabolism		movement, and denning of	
and water intake	325		408
Ambystoma macrodactylum, life		selection of winter night beds	
history	361		245
Ammocrypta beani, comparison	000	Biogeography, distribution of	005
with A. bifascia	209		225
A. bifascia, life history	209	Production of the control of the con	325
Amphibians, life history of long-	261	range revision of southern	419
toed salamander	361		413
Anatomy, craniomandibular dif-	204	Birds, metabolism and water	205
ferences of collared peccaries.	384		325
regressions for estimating body	200		200,
Arizona hilltopping in	388		319
Arizona, hilltopping in	69	trematodes of intercontinental	374
nymphalid butterfly	09	Brachyraphis rhabdophora, cave	3/4
Astyanax fasciatus, cave colonization	7	colonization	7
Coloniadion	,	Calidris melanotos, trematode	,
Behavior, hilltopping in		fauna	374
nymphalid butterfly	69	California, coastal sage suc-	

Gerrhonotus coeruleus population.	309 30	Okefenokee succession, postfire in coastal	287
Campostoma anomalum and C.		sage	309
oligolepis, food and feeding	217	tallgrass prairie remnants	294
Canis latrans, foraging in winter.	203	vegetation on muskrat mounds	392
Canis lupus, effect of road density. Carex macrocephala, paradioecy and	404	Errata	208
	283	m men two t	
gender ratios	69	Fagus grandifolia, seed dispersal	
Chlosyne californica, hilltopping		by blue jays	319
Colonization, artificial substrates	92	Feeding, mayflies	343
Costa Rica, cave colonization by	-	stonerollers	217
fish	7	Fish, cave colonization	7
Cyanocitta cristata, dispersal of beech seed	319	distribution in Midwest	225
model model in the control of the	0.0	food and feeding of stone-	017
Delaware, density and repro-		rollers	217
	353	host suitability for Villosa	13
duction of yellow jacket	333	life history of Florida sand	
Didelphis virginiana, movement	400	darter	209
and denning	408	range revision of southern	
		cavefish	413
Ecology, animal, cave		Florida, life history of Florida	
		sand darter	209
colonization by fish, effect of	7	Georgia, succession of tree	
bats	202	islands in Okefenokee	287
coyote foraging	203	movement and denning of	
density and reproduction of	050	opossums	408
yellow jackets	353	Gerrhonotus coeruleus, growth and	100
environmental influences on		survivorship	30
nest-site selection and bur-			20
rowing of pine vole	102	Glaucomys volans, homing and	020
feeding on cherry by eastern		ecology	238
tent caterpillar	45	Gutierrezia microcephala, grass-	400
food habits of mayflies	343	hopper attack	193
forage availability to mountain		Helicopsyche borealis, life history	76
goats	108		
life history of long-toed sala-		Illinois, immigration in voles	255
mander	361	mating of Lasius alienus	190
litter consumption by earth-	501		130
	1	Impatiens capensis, pollination and	84
worms	188	fitness	OT
mortality of cotton rats	100	Insects, Bombus, pollination and	0.4
populations of Gerrhonotus	20	nectar robbing	84
coeruleus	30	colonization of submerged	
resource partitioning by	00	wood	56
crayfish	20	density and reproduction of	
seed dispersal by blue jays	319	yellow jackets	353
seed distribution by birds	200	grasshopper, effect on stem	
Ecology, plant, allocation of		water potential	193
nutrients and biomass in		Helicopsyche borealis life history.	76
grasses	170	hilltopping in nymphalid but-	
litter production of semidesert		terfly	69
shrubs	158	mating of Lasius alienus	190
pattern, interspecific	138	mayfly food habits	344
response of Sitanion hystrix to		mimicry in wasps	198
burning	182	stonefly distribution in	
succession in aspen forest	271	streams	334
succession in lowland forest	146	unpalatability and toxicity of	301
succession in tree islands in	110	cinnabar moth	491
succession in acc islanus in		Cimavai motti	101

Invertebrates (other than insects),		Mississippi, holocene	
colonization of submerged		vegetational changes	122
wood	56	Missouri, food and feeding of	
consumption of leaf litter by		stonerollers	217
earthworms	1	resource partitioning by	
crayfish burrowing	390	crayfish	20
crayfish resource partitioning.	20	Müllerian mimicry, wasps	198
Juniperus virginiana, effect on seed			
distribution by birds	200	Nectar robbing, in Impatiens	
Kansas, mortality of cotton rats	188	capensis	84
Iilitin	100	New Mexico, grasshopper in-	
Lasius alienus, mating	190	fluence on stem water potential	
Lumbricus terrestris, consumption	1	Notropis lutrensis, distribution	225
of leaf litter	1		
MacArthur-Wilson equilibrium	00	Odosoileus virginianus night hade	245
model	92	Odocoileus virginianus, night beds	413
Malacosoma americanum, feeding on		Ohio, pollinator foraging and	84
cherry	45	fitness in Impatiens capensis	04
Mammals, bat predation on cave	_	Oklahoma, allocation of	
fish	7	nutrients and biomass 13	170
craniomandibular differences		grasses	170
in collared peccaries	384	life history of Helicopsyche	70
forage availability to		borealis	76
mountain goat	109	Ondatra zibethica, vegetation on	000
foraging of coyote	203	mounds	392
homing in southern flying		Ontario, burrowing of crayfish	390
squirrel	238	Orconectes lutrens and O.	
movement and denning of		punctimanus, resource	-
opossum	408	partitioning	20
night beds of white-tailed deer.	245	O. propinquus, burrowing	390
noncycling population and		Oregon, food habits of mayflies	344
immigration in voles	255	life history of long-toed	
pine vole	102	salamander	361
regressions for estimating		response of Sitanion hystrix	
body size	388	to burning	182
road densities and wolves	404	Oreamnos americanus, forage	
Maryland, night beds of white		availability	109
tailed deer	245		
Massachusetts, regressions for		Paleoecology holocene vegeta-	
estimating body size of		Paleoecology, holocene vegeta-	122
Microtus spp	388	Parasites, host fish suit-	144
Michigan, consumption of leaf	000		13
litter by earthworms	1	ability for Villosa	374
muskrat mound vegetation	392	Physiology animal metabolism	3/1
protozoan colonization of	004	Physiology, animal, metabolism	225
artificial substrates	92	and water intake by blackbirds	343
succession in aspen forest	271	Physiology, plant, grasshopper	
succession in lowland	146	influence on stem water	193
	110	potential	193
Microtus breweri, regressions for	388	Populations, noncycling and im-	255
Migratus temperaturanisms, popularia	300	migration in voles	
Microtus pennsylvanicus, noncycling	255	paradioecy and gender in Carex	
populations and immigration.	255	Propulus grandidentata, succession	271
regression for estimating	200	Prairie, tallgrass prairie voles	255
Ministry firsters influences on	388	tallgrass prairie in Texas	294
Microtus pinetorum, influences on		Predation, bats on cave fish	1
nest-site-selection and	102	Protozoans, colonization on	00
burrowing	102	artificial substrates	92

Prunus serotina and P. virginiana, feeding by eastern tent		Tringa solitaria, trematode fauna. Typhlichthys subterraneus, range	3/4
caterpillar	45	Tyria jacobaeae, unpalatability and	413
Reproduction, sprouting in	309	toxicityUtah, life history of long-toed	401
coastal sage		salamander	361
ship of Gerrhonotus coeruleus	30	litter production of semi- desert shrubs	158
Sigmodon hispidus, mortality and			
weather	188	Vespula maculifrons, density and reproduction	353
burning	182	Villosa vanuxemi and V. nebulosa,	
Statistics, sampling scale effects		host fish suitability	13
on interspecific patterns	38	Virginia, effect of red cedar on	
Streams, colonization of sub-		seed distribution	200
merged wood	56	homing of southern flying	
food habits of mayflies life cycle of Helicopsyche	344	squirrel	238
borealis	76	Washington, paradioecy and	
stonefly distribution	334	gender in Carex	283
Succession, aspen forest	271	vegetation limits to	
lowland forest	146	mountain goats	109
tree islands in Okefenokee	287	West Virginia, interspecific pat- tern in hemlock-hardwood	
Tayassu tajacu, craniomandibular		forest	138
differences	384	Wisconsin, foraging of coyotes	203
Tennessee, stonefly distribution.	334	road density and wolf habitat	405
Texas, tallgrass prairie remnants	294	seed dispersal by blue jays	319

